



## Mechanical Properties of Heads and Bunches of Promising Local Grape Varieties

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**Annotation:** In the article, the mechanical properties of grape heads and bunches of promising local varieties of grapes were studied. Grape head, bunch weight, and mechanical composition of grape varieties Said Gulyam, Husayni Kelinbarmak, Kara Djanjal and Husayni Belyyy are described.

**Keywords:** grape, variety, grape bunch, bunch, cluster, skin, seed.

**Introduction:** Table varieties of grapes, as in many other fruit and berry crops, are a positive sign in any application of the product.

It should be noted that the value of the new varieties is primarily determined by the mechanical properties of the bunch of grapes. A detailed knowledge of the mechanical composition and properties of the head and stem of each newly created grape variety determines its consumption characteristics and allows for their effective use in the technological processes of processing. Because, first of all, the consumption qualities of fresh grapes depend on the size of the bunch of grapes, the consistency of the flesh, the amount of sugar in the content, secondly, in technical varieties, the juice extracted for wine is separated in several stages according to the mechanical composition of the grape cluster, and finally, thirdly, the quality of promising local food varieties directly depends on the mechanical properties and sugar content of the grape cluster [4; 53-57; 5; 5-24].

**Scientific research method.** Field experiments are conducted in the grape collection and experimental fields of the Research Institute of Horticulture, Viticulture and Winemaking named after Makhmud Mirzaev. The mechanical analysis of the composition of the grape head was carried out based on the method recommended by Professor A.N. Prostoserdov [3 63 p.] and generally accepted methods in viticulture [1 72 p] [2 43-44-b].

To analyze the mechanical structure of the grape head, 5 grape heads specific to the variety were taken, the weight of each grape head was weighed on a scale (g), the number of bunches in each grape head was counted (pieces), the total weight of the bunches in the grape head was weighed (g), the weight of the shingle was determined (g), the ratio of bunches and grapes per grape head is found (in relation to the total weight of the grape head, %).

To determine the weight of grape head skin, seeds and juice, the obtained grape head are placed in a cloth bag (preferably gray cloth) and the juice is squeezed out of it. The residue left in the bag is poured onto a filter paper, the seed is separated from it and weighed on a balance. Then the weight of the remaining skin and flash is weighed. To find the juice weight, the seed and skin weight is

subtracted from the mass weight.

**Research results.** The analysis shows that scientific research observations were made to study the mechanical properties of the main grape head and stem in promising local food grape varieties.

Based on the above, the mechanical properties of grape head bunching of promising local fodder varieties of grapes were analyzed. The conducted analyzes show that the largest grape heads were identified in the Said Gulyam variety (830 g) (Table 1).

Table 1. Grape head weight and mechanical composition of promising local fodder varieties of grapes

o/n	Varieties	Average weight of grape head, g	The average weight of grapes in the grape head, g	The average weight of grapes on the head of grapes, g	The average number of clusters per grape head, pcs	The size of a grape head	
						length, cm	width, cm
1.	Said Gulyami	830	8,3	821,7	171,2	37,5	17,5
2.	Husain bride finger	350	6,3	343,7	76,4	27,0	9,0
3.	Kora janjal	274	4,7	269,3	165,0	22,0	13,0
4.	Hussain bely	325	5,5	319,5	77,2	31,5	20,0

The smallest weight of grape heads (274 g) was recorded in the Kara janjal grape variety. In other grape varieties, the average weight of grape heads was intermediate between the above varieties and averaged around 325-350 g.

It is known that the linear size of grape heads is also an important ampelographic sign. Observations showed that the longest grape heads - around 37.5-31.5 cm - were formed in Said gulyami and Husayni bely varieties. The shortest grape heads - 22 cm in length - were recorded in the Kara janjal variety. In the remaining variety, the length of the grape head was in the range of 27 cm and was intermediate between the above varieties.

According to the width of the grape head, the promising local table varieties of grapes were differentiated. The largest grape heads with a width of 17.3-20 cm were found in Said gulyami and Husayni bely varieties, while the smallest expression - 9 cm was recorded in the Husayni bride's finger variety. In the rest of the variety, this indicator changed in the range of 13 cm.

The data in Table 2 below shows that the yield of the fruit was insignificantly different by varieties and was in the range of 97.03-98.84%.

Table 2. Mechanical composition of the cluster of promising local food varieties of grapes (in percent by weight), 2020-2022

o/n	Varieties	Skin, %	seed, %	flash, %
1.	Said Gulyami	4,0	2,1	93,9
2.	Husain bride finger	3,9	2,4	93,7
3.	Kora janjal	1,7	4,4	95,3
4.	Hussain bely	3,8	2,3	93,9

The promising local fodder varieties of grape were differentiated by the mechanical composition of grape head clusters. Depending on the grape variety, the weight of the skin compared to the weight of the bunch was 1.7-4.0%, the seeds were 2.1-4.4%, and the fruitiness of the bunch (including water) was 93.7-93.9%. The Kara janjal variety was distinguished by the least amount of cluster skin (1.7%), and the Said Gulyami variety by the largest weight of this indicator (4.0%).

The seeds were the most significant (4.4%) in the cluster of grape heads of the Kara janjal variety. It was noted that it was insignificant (2.1%) in Said Gulyam variety. In other varieties, this indicator was 2.4-2.3%.

## Summary

1. The largest grape heads are produced in the Said Gulyam (830 g) grape variety, the small grape heads are produced in the Kara janjal variety (274 g), and the remaining Husayni bride finger (350.0) and Husayni Bely (325) varieties produce average grape heads. The largest bunches are recorded in Said Gulyami varieties 821.7, small bunches - 269.3g Kara janjal, the rest Husayni bride finger (343.7) and Husayni Belyy (319.5) are medium grape varieties.
2. The Kara janjal variety was distinguished by the least amount of cluster skin (1.7%), and the Said Gulyami variety by the largest weight of this indicator (4.0%). The weight of the skin is 1.7-4.0%, the weight of the seeds is 2.1-4.4%, and the pulp content (including water) is 93.7-93.9%.

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